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(54) Screwdrivers

(57) A screwdriver has a central or offset pin 6 in its blade 1 engageable with a corresponding bore 11 in a screw for guiding and retention. The screw and/or screwdriver bore may be throughout. The pin is held magnetically in the screwdriver and has a pointed end to be used as a bradawl. The pin may be manually retracted. A countersinking blade or a conical guide may fit over the screwdriver blade around the pin. The screw may have a cover fastening with a stem seating in the bore.

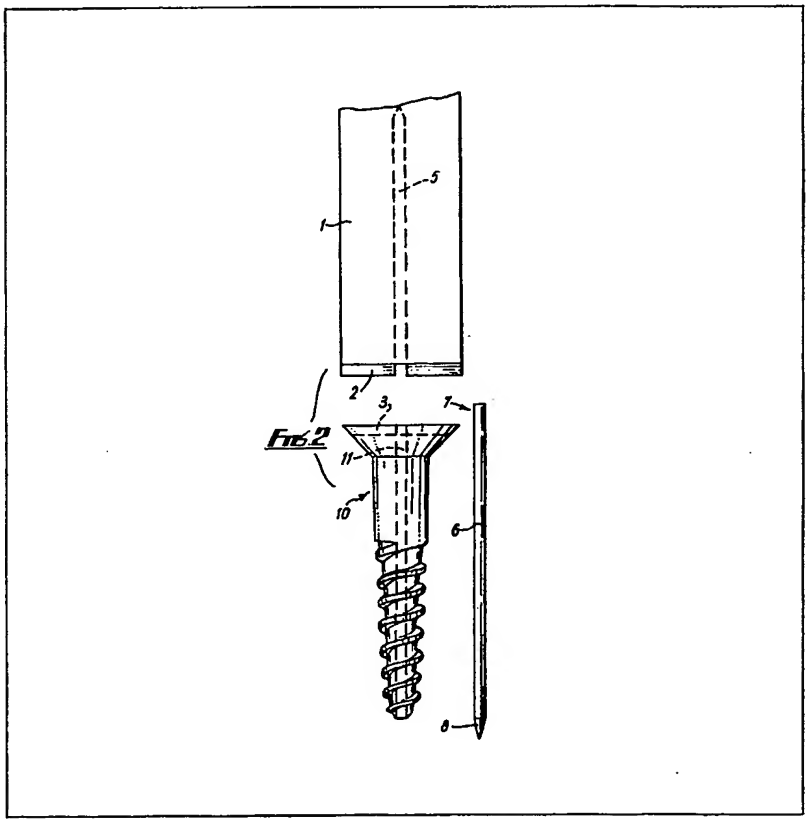

Fig 2

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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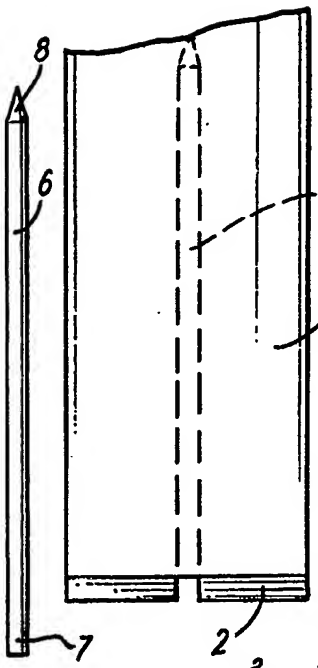

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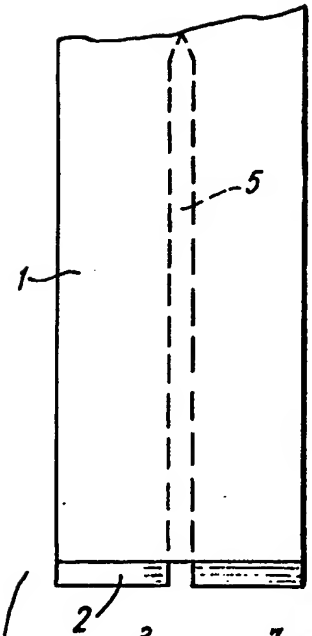

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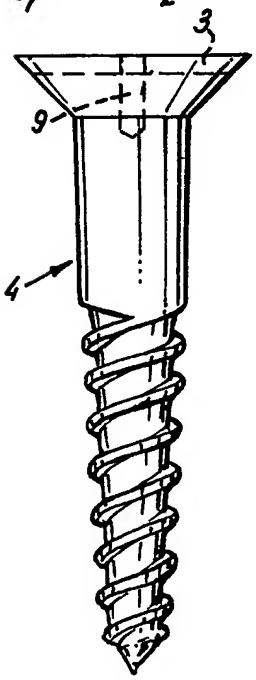

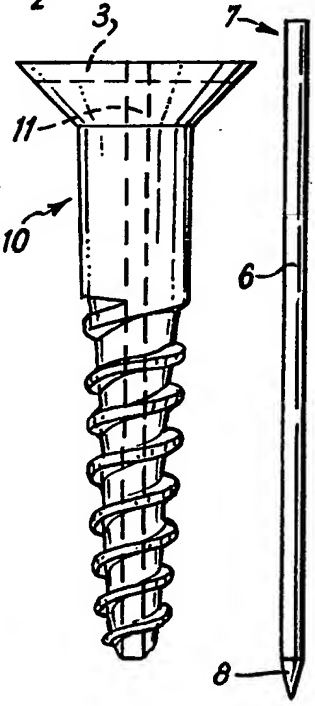

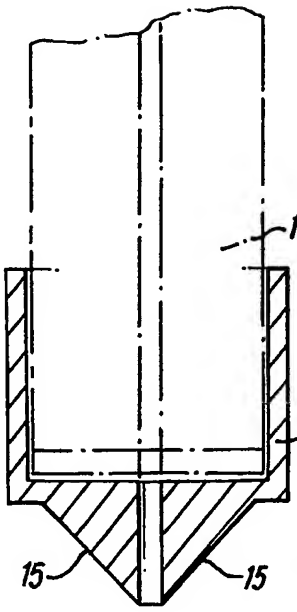

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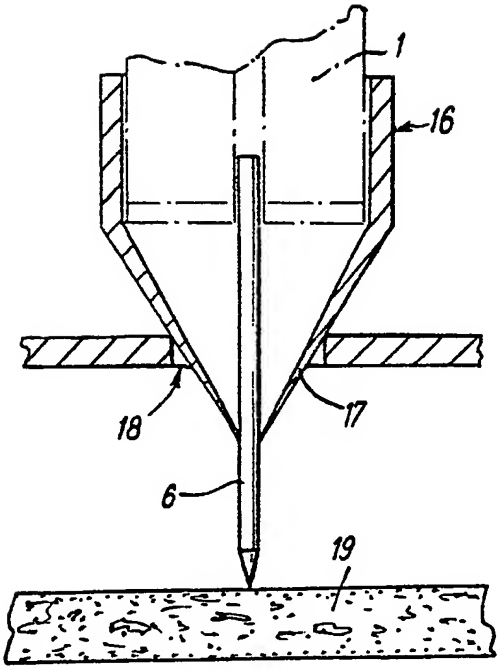
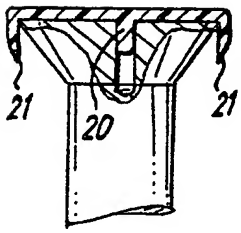
Фиг.3



Фиг.5



Фиг.6

SPECIFICATION

Improvements in screwdrivers

This invention relates to screwdrivers and to screws for use therewith.

When using known screwdrivers and screws difficulty can be experienced firstly in accurately positioning the screw so that it is driven into the workpiece in the correct place and at the correct angle. At present such difficulties may be overcome by drilling a pilot hole which is time consuming and involves the use of additional tooling such as a bradawl or drill. Secondly, difficulty can be experienced with the screwdriver slipping out of the slot or other formation on the screw.

An object of the present invention is to obviate or mitigate the disadvantages of such known arrangements for driving screws.

According to the present invention there is provided a screwdriver in combination with a screw and in which said screwdriver includes a pilot pin located in the screwdriver blade and adapted to co-operate with a bore formed in the head of said screw so as to locate one relative to the other when the screwdriver is rotating the screw.

Preferably, the pilot pin is slidably located in a bore formed in the screwdriver blade and is shaped at one end to facilitate insertion into a workpiece.

Preferably also, said bore in said screw is formed axially throughout the length of the screw.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 shows a partial view of the screwdriver blade and associated screw and pilot pin;

Figure 2 shows a modified embodiment of the screwdriver and screw shown in Figure 1;

Figure 3 shows a further modified screwdriver and screw according to the invention;

Figure 4 shows a first attachment for the screwdriver according to the present invention;

Figure 5 shows a second attachment for the screwdriver according to the present invention; and

Figure 6 shows a clip fastener for use with the screws according to the invention.

Referring now to the drawings the tip of a blade of the screwdriver is indicated at 1 and is provided with a shoulder 2 adapted to be received within the slot 3 of a screw shown at 4. The blade 1 is provided with a bore 5 adapted to receive a pilot pin 6 which can preferably be retained therein magnetically. The pilot pin has a blunt end 7 and a sharpened end 8 and when retained in the bore 5 extends beyond the shoulder 2 and is adapted to co-operate with a bore 9 formed centrally in the head of the screw 4. Thus, when the screwdriver 1 is driving the screw 4 the pilot pin co-operates with the bore 9 to retain the screw in the desired position relative to the screwdriver. Furthermore, the pilot pin 6 is reversed so that the pointed end 8 extends from the bore 5 may be utilised as a bradawl.

Referring now to Figure 2 a screwdriver blade 1 identical to that already described with reference to Figure 1 and having a similar pilot pin 6 is provided for co-operation with a screw 10 which has a slot 3 as previously described but has a bore 11 extending axially throughout its length and diameter compatible with the diameter of the pilot pin 6. When this combination is used the pilot pin 6 is located in the bore 5 with the sharp end 8 extending beyond the shoulder 2 and the pin is pushed into a work-piece at the position in which the screw is to be inserted. The screwdriver is then withdrawn leaving the pin 6 inserted in the workpiece whereupon the screw 10 is slipped over the pin 6 and the screwdriver slipped on to the pin until the shoulder 2 co-operates with the slot 3 to enable the screwdriver to drive the screw into the workpiece down the pin 6. As the screw moves in to the workpiece the material of the workpiece moves up to the bore 11 and ejects the pin 6 into the bore 5 of the screwdriver.

Figure 3 shows a watchmaker's screwdriver which operates on a similar principle to that already described except that the pilot pin 6 is retractable into the body of the screwdriver under the control of a finger operated plunger 12 located at one end of the body 13 of the screwdriver in a manner similar to that utilised in conventional clutch pencils.

Referring now to Figure 4 there is shown a counter sinking attachment for use on the screwdriver blade 1 described with reference to Figures 1 and 2. The attachment includes a housing 14 shaped to fit snugly over the end of the blade 1 and which has cutting edges 15 angled at the desired counter sinking angle. The counter sinking attachment has an extension to the bore 5 shown at 5A through which the pin 6 can pass so that in operation the pin 6 is inserted in the workpiece in the manner previously described. The counter sinking attachment is slipped over the blade of the screwdriver and on to the pin so as to positively locate the attachment concentrically with the position in which the screw will eventually be inserted. Rotation of the screwdriver then enables the cutting edges 15 to cut out the countersunk portion in the workpiece. The counter sinking attachment can then be removed and the screw 10 slipped over the pin as previously described.

When screwing an object to a workpiece it is often necessary to align a hole in the object with the position in the workpiece into which the screw is to be driven. An attachment for facilitating this is shown in Figure 5 and comprises a device 16 similar to the counter sinking attachment but merely having a conical portion 17 through which the pin passes concentrically and which abuts the edge of a hole 18 in the object being screwed to a workpiece 19. In use, the pin 6 is inserted into the workpiece 19 using the cone 17 as a guide so that the pin 6 is concentric with the hole 18. The screw 10 can then be inserted in the manner previously described.

If desired a clip fastener shown in Figure 6 can be provided and which comprises a plastic moulding of the profile shown in the Figure and which fits into the slot 3 in the screws 4 and 10, which fastener is provided with a central lug 20 which locates in the central bore of the screw and external lugs 21 which pass over the head of the screw and when the fastener is driven on to the screw retain the fastener

in position on the screw by deflecting under the chamfered head. The provision of such a clip fastener prevents the central bore and the slot of the screw being fouled with paint and the like and thereby facilitates removal of the screw at a later date.

While in the above described embodiments the pilot pin has been shown as being concentric with the axis of the screwdriver clearly the pin could be provided at a position offset from the centre or to one side of the screwdriver blade as desired. Furthermore, the pin can either be a short pilot pin extending into a bottom bore in the screwdriver or it may pass throughout the length of the screwdriver as in the embodiment shown in Figure 3.

Other improvements or modifications may be made without departing from the scope of the invention.

CLAIMS

1. A screwdriver in combination with a screw and in which said screwdriver includes a pilot pin located in the screwdriver blade and adapted to co-operate with a bore formed in the head of said screw so as to locate one relative to the other when the screwdriver is rotating the screw.

2. A screw for use with the screwdriver as claimed in claim 1.

3. A screwdriver substantially as hereinbefore described.

4. A screw substantially as hereinbefore described.

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